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ABSTRACT

The interaction between personality and social structure is one of the grand themes of both classical and contemporary social science. While different disciplines have addressed this issue from a variety of perspectives, within both sociology and psychology there are long standing research traditions that focus on the relationship between personality and the occupational role structure. In psychology, the Holland theory of vocational choice has received a considerable amount of research interest and support over the last decade. Widely used as a theoretical perspective in research and as an orienting and classification device in vocational counseling, the perspective of the Holland theory is that a person searches for an occupation that will be congruent with his or her personality. Macrostructural implications show that the probability of congruence is determined by the degree of isomorphism between the relative frequency distributions of personality and occupation types. The relative frequency distribution of occupation types is determined by technology and socioeconomic factors. Some personality types will experience increased structural incongruences when the system's isomorphism decreases and they will be less likely to replicate their personality type through redistribution mechanisms. Redistribution will, however, act to decrease the membership of personality types that are affected by structural incongruence and consequently the system will tend towards a condition of isomorphism. This theory has both cultural and research implications. (Author/ABB)

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Macrostructural Implications
of The Holland Theory

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Abstract

The interaction between personality and social structure is one of the grand themes of both classical and contemporary social science. Different disciplines have addressed this issue from a variety of perspectives but within both sociology and psychology there are long standing research traditions that focus on the relationship between personality and the occupational role structure. In psychology, the Holland theory of vocational choice has received a considerable amount of research interest and support over the last decade. Although widely used as a theoretical perspective in research and as an orienting and classification device in vocational counseling, there has been little work that explicitly examines the macrostructural implications of the Holland theory. This paper is an attempt to examine the macrostructural implications of the Holland theory and to demonstrate how the theory can be extended to deal with the issue of cultural change. Suggestions for empirical research are offered.

The interaction between personality and social structure must surely be one of the grand themes of both classical and contemporary social science. Different disciplines have addressed this issue from a variety of perspectives but within both sociology and psychology there are long standing research traditions that focus on the relationship between personality and the occupational role structure.

In psychology, the Holland theory of vocational choice has received a considerable amount of research interest and support over the last decade. Widely used as a theoretical perspective in research and as an orienting and classification device in vocational counseling, the theory continues to sustain interest.

However, to date there has been little work that explicitly examines the macrostructural implications of the Holland theory. This is unfortunate since the concepts and propositions of the theory may well be very valuable in expanding our knowledge of the relationship between personality and social change. Moreover, within the Holland theory there are certain implicit assumptions about social structure and social change. By making these assumptions more explicit and examining their implications, we may also be better able to evaluate the general Holland theory.

This paper is intended as an attempt to examine the macrostructural implications of the Holland theory. By making such an examination it is possible to demonstrate how the theory can be extended to deal with the issue of cultural change. As presented here, the discussion will be mainly abstract but suggestions for empirical research will be offered.

A brief review of some of the major features of the Holland theory will be useful. Holland (1973, 1985) delineates and describes six basic personality and occupation types: Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E) and Conventional (C). Each type has its own discrete set of defining characteristics (Holland, 1973; 1979; 1985). The relationship among types is represented by the now famous (ubiquitous) Holland hexagon; the shorter the distance between types on the hexagon, the greater the degree of similarity (see Figure 1 below).

Personalities and occupations are classified as particular combinations of the six basic types. The classification convention is to use a three letter code in which the first letter denotes the primary type, the second letter the secondary type and so on. Thus, an individual with the personality code RIA is primarily realistic but also has important if less prominent Investigative (I) and Artistic (A) traits.

Using this taxonomy and classification system, Holland has developed an elegant theory of vocational choice behavior. Individual personality profiles are shaped through a variety of factors including

heredity and socialization. In their occupational search, individuals will tend to seek out jobs which are congruent with their personalities. Thus an RIA person will tend to seek an RIA occupation (or one similar to it such as an RAI occupation).

Stripped to its essentials the theory implies that people with certain personality characteristics are more apt to be satisfied by certain occupations (and occupational environments) that are supportive of their personality characteristics, and that people will tend to gravitate to those occupations that will satisfy them -- a condition which Holland calls "congruence." Within the theory, the postulated relationship between personality/occupation type is critical. If this relationship does not hold then the alternative is that any personality type will be equally satisfied in any occupation. Acceptance of this alternative would effectively eliminate personality as a factor in vocational choice behavior. If all occupations are equivalent as potential personality gratifiers, then there would simply be no point in discriminating among occupations. The individual would be equally satisfied (or equally dissatisfied) in any occupation.

Although the relationship between congruence and satisfaction has not received the full empirical investigation that its theoretical importance seems to warrant, recent studies appear to provide mounting (if yet tentative) support for the Holland theory's congruence/satisfaction hypothesis (Mount and Muchinsky, 1978; Peiser and Meir, 1978; Melamid and Meir, 1981; Hener and Meir, 1981.)

The Isomorphism Assumption

It is useful to distinguish between the Holland theory as a description of vocational search behavior and as a description of occupation outcome. That is if one assumes that individuals search for jobs that will be congruent with their personality, one must still determine the degree of success achieved in this search. Perhaps most people look for jobs that are congruent with their personalities but have to settle for incongruent jobs. Proponents of the theory believe that it describes both search and outcome and that most people find congruent jobs (Holland and Gottfredson, 1976).

If the Holland theory is to provide an adequate description of vocational search outcome then it must be the case that there is a high degree of isomorphism between the relative frequency distribution of personality types within the labor force and that of occupations. Thus if 25% of the labor force is R in terms of personality type then 25% of the jobs must also be R if most of the R persons are to find jobs that are congruent with their personalities. Implicit in the Holland theory as a description of occupation search outcome is the assumption that this isomorphism exists in at least an approximate form; without it, it is arithmetically impossible for a majority of people to find jobs that are congruent with their personalities.

Furthermore, if the Holland theory is to generalize across time, then it must assume that the isomorphism between the relative frequency

distribution of personality and occupation types also endures across time. This has important implications. For the state of isomorphism to endure it must be the case that as the relative frequency of either personality or occupation types changes, then the relative frequency of the other also changes. This would lead us to first suspect and then search for possible mechanisms that link the two distributions together.

As an aside, it should be noted that the utility of the Holland theory is not totally dependent upon the isomorphism assumption. The theory may provide an adequate and accurate description of vocational search behavior with or without the isomorphism assumption. However, the validity of the isomorphism assumption does bound the utility of the Holland theory as a description of occupational outcome. Therefore it is necessary to examine the isomorphism assumption to determine, among other things, whether the theory provides a general or restricted description of occupation outcome.

The available evidence does not appear to be friendly to the isomorphism assumption. Data reported by Gottfredson, Holland and Gottfredson (1975) seems to indicate a low degree of isomorphism between the relative frequency distributions of personality and occupation types (see Table 1). For purposes of illustration it is useful to incorporate the data from Table 1 into the familiar Holland Hexagon (see Figure 1).

Table 1

Notice that at each vertex of the hexagon there is either a surplus or a deficit of personality type frequency relative to occupation type frequency. In particular note that while the right hand side of the hexagon (I, A, S) has 51% of the people but only 18% of the jobs, the left hand side (R, C, E) has 82% of the jobs but only 49% of the people. In this example, it is obvious that people with a R, C or E personality type have a much better chance of finding a job that will be congruent with their personality than will the I, A or S people. Most of the latter will have to take jobs that are incongruent with their personality type. (At least in terms of the first letter code; the situation is more complex when we work with the three letter codes.)

Figure 1

It is important at this point to distinguish between two distinct types of personality/occupation type incongruence. Even in a situation where there is a high degree of isomorphism between the relative frequency distributions of personality and occupation types, we would still expect some degree of incongruence. People might make mistakes or economics, education or plain luck may affect choice. Still,

potentially congruent jobs do exist and people could search for them with a probability of success. We propose to call incongruence under these conditions "circumstantial incongruence." Since the Holland theory predicts that people tend to leave incongruent jobs and that congruence increases with age (Holland and Gottfredson, 1975) we would expect that circumstantial incongruence while always present, is at the individual level always in the process of resolution. In a sense, we could view people in incongruent jobs as "trading" jobs with each other in an attempt to achieve congruence.

Circumstantial incongruence should be distinguished from what we shall call "structural incongruence." This exists when there is low isomorphism between the relative frequency distributions of personality and occupation types. In this situation, for many people the vocational search will not and cannot lead to a congruent job. Such jobs simply do not exist in sufficient numbers and many people will simply have to settle for jobs that are incongruent with their personalities. (This should not be confused with what economist's call "structural unemployment" where there are not enough jobs relative to the number of people seeking work. With "structural incongruence" enough jobs for all may exist but the distribution of jobs among occupational types does not allow everyone to find a job congruent with their personality.)

Returning to figure 1, we may view this situation as one of low isomorphism and hence of a high level of structural incongruence. Given the postulated relationship between congruence and satisfaction, we would expect the situation in figure 1 to be one wherein a great many people will experience dissatisfaction with their occupation.

A case can thus be made that the implicit isomorphism assumption of the Holland theory is at best only partially correct. However, even if evidence indicates that the relative frequency distributions of personality and occupation types are not isomorphic at a given point in time, it might still be the case that over time the system tends toward isomorphism. Perhaps the system is in a transition period in which the two distributions are out of phase but in which they are still moving toward isomorphism. If this is the case, then the high degree of structural incongruence indicated by the example in figure 1 may be both anomalous and temporary. To resolve this question it is necessary to examine the question of change in the relative frequency distributions of personality and occupation types.

Change in the Distribution of Occupation Types

There is strong evidence that the relative frequency distribution of occupation types changes over time. Gottfredson and Daiger (1977) have compared 1960 and 1970 census data and concluded that R type jobs declined in this period from 54.7% to 47.6% of total employment. Overall they conclude that R type jobs are declining and S and E type jobs increasing. This is consistent with the conventional wisdom that the United States is in a transition from an industrial to a service economy.

While some care must be exercised against over-interpreting such limited data, these findings demonstrate that even in the relatively short period between one census and the next, significant changes can occur in the relative frequency distribution of occupation types. Over the long run, futurists like Snyder and Edwards (1984) confirm this trend and estimate that by the year 2,000 service and information processing occupations will employ between 80 and 95 percent of the U.S. labor force. Working with the data presented in The Statistical History of the United States, we would estimate that, in the period from 1900 to 1967, manufacturing and farming (R type jobs) declined from 80% to 50% of total employment. Certainly a great deal more can and should be done using Holland codes to track historical changes in the distribution of occupations.

Some possible sources of change in the relative frequency distribution of occupation types readily suggest themselves. Technological change must certainly increase or decrease the number of certain jobs over time. Market demand might be another factor; consumers opt for Japanese over American cars and thereby contribute to a reduction in the number of assembly line jobs in the United States. Demographic fluctuations may also be a factor. For instance, a population with a high percentage of children might have a relatively high percentage of its labor force employed in teaching. The relative frequency of teachers might then decline as the population's age structure changes. Finally, social technology such as managerial style may also change the relative frequency distribution of occupation types by altering the psychological meaning of work in certain occupations (see Braverman, 1974 and Greenbaun, 1979 for arguments suggesting how Tayloristic management practices have impacted psychologically on certain occupations).

If, as has been argued, the isomorphism assumption is to hold, then changes in the relative frequency distribution of occupation types must be reflected in the relative frequency distribution of personality types. Figures to document secular change in the relative frequency of personality types are not available at this time. Nevertheless, this should not inhibit us from searching for possible mechanisms which act to redistribute the relative frequencies of personality types.

Redistribution Mechanisms

The general process whereby the relative frequency of personality types is changed so as to maintain isomorphism with the relative frequency distribution of occupation types will be referred to as "redistribution." Two possible mechanisms of redistribution will be specified here. At this point, the descriptions must be viewed as both tentative and theoretical. However, the proposed linkages for each mechanism of redistribution are fully testable and could serve as research hypotheses.

The analysis of redistribution begins with the process of individual personality type development. Although Holland does not

present a complete explanation of the process of personality type development, in general types are viewed as developing through the interaction of heredity and socialization (Holland, 1985). Parental influence is important in this process and Holland (1985:15) believes that to some degree "types produce types." Research on the intergenerational replication of types is both scant and tentative but there does appear to be some support for the notion that types produce types (Grandy and Stahmann, 1974; Grotevant, Scarr and Weinberg, 1977; DeWinne, Overton and Schneider, 1978).

Occupational sociology has also devoted considerable research attention to the content and processes of intergenerational transmission of occupation related personality traits (Mortimer, 1974, 1975, 1976; Lueptow, McClendon and McKeon, 1979; Spenser, 1981; Mortimer and Kumka, 1982). Particularly relevant to the present discussion is a suggestion by Mortimer (1974) that parental dissatisfaction with work may generate socialization practices which decrease the likelihood of intergenerational transmission of occupational values and career preferences. If this is indeed the case and given the Holland theory's postulated relationship between incongruence and satisfaction, we would predict that incongruent people (i.e. persons whose personality and occupation types are incongruent) are less likely to replicate their types across generations than are congruent people.

We could then argue that cross generational replication of personality types is most likely to occur when a condition of isomorphism exists between the relative frequency distributions of personality and occupation types. This would be so because under the condition of isomorphism most people are probably able to find work that is congruent with their personality and hence are likely to replicate their personality type in their offspring. It can also be seen how a system that is in isomorphism will tend to maintain itself. The relative frequency distribution of personality types will tend to repeat itself over the generations and assuming no change in the relative frequency distribution of occupation types, the state of isomorphism will endure.

However, suppose change does occur and the system loses its isomorphism and now exhibits a high level of structural incongruence. Even now there will be a tendency for the system to correct itself and move back towards isomorphism. This will occur because the incongruent people will be less likely than the congruent persons to replicate their personality types across generations. We can view the incongruent parents as "pushing" their offspring out of the personality types that are subject to a high degree of structural incongruence. As the offspring move into the low structural incongruence categories, these, over time, will continually gain members at the expense of the high incongruence categories. Given enough time, this intergenerational migration from high to low structural incongruence personality categories should result in a redistribution of the relative frequencies of personality types so as to bring the system back to approximate isomorphism. This describes Type I redistribution.

An understanding of type I redistribution may be enhanced by a simple example. Imagine a society in which every adult has a job but which also has a high level of structural incongruence: there are more I, A and S type people than there are I, A and S type jobs. Thus many of the I, A and S people are subject to structural incongruence. By contrast, the R, C and E people enjoy a much higher probability of achieving congruence. We would expect that the R, C and E people, being congruent, will replicate their own personality types across generations. Many of the I, A and S people are incongruent and we expect them to be less apt to replicate their own types across generations; they will push their offspring into different personality types.

Now, let us, for the purpose of this illustration, make the very strong assumption that as offspring are "pushed" out of a given type they have an equal probability of becoming one of the other existing types. For instance, an incongruent A parent "pushes" his son out of the A personality type and the son now has an equal probability of becoming an R, S, C, E or I. But, if the son becomes a R, C or E he has escaped structural incongruence and he in turn now has a higher probability of replicating his own type in his offspring. By contrast, if the son becomes an I or S, he is still subject to structural incongruence and he in turn has a lower probability of replicating his own type in his offspring.

In type I redistribution, the structurally incongruent personality types are always "pushing" members out over the generations while the other categories tend to keep the members who are pushed to them. It is obvious that, over time, the high structural incongruence categories will lose members and the low structural incongruence categories will gain them. Consequently, the whole system should gradually tend towards isomorphism. The rate at which the system moves toward isomorphism may be largely a function of the validity of the assumption that the offspring of incongruent parents have an equal probability of becoming one of the other existing personality types. If the offspring are more apt to become types which are subject to structural incongruence, then the system will move towards isomorphism slower than it would if the offspring are more apt to become types that are not affected by structural incongruence. Thus, it is important to determine both if there is a direct relationship between incongruence and low probability of cross generational replication of types and if the offspring of incongruent parents are more likely to become certain types.

The second redistribution mechanism is also based on the postulated relationship between congruence and cross generation replication of personality type. However, the fate of the offspring of incongruent parents is somewhat different than was the case with type I redistribution.

It will be recalled that the Holland theory classifies individuals in terms of a three letter code with the first letter indicating the most salient type and so on. As measured by interest inventories such as the VPI and SDS (Holland, 1979) a personality may be differentiated

or undifferentiated. An undifferentiated personality lacks well defined differences in the saliency of the various types present. Holland (1973, 1979) believes that most people have differentiated personalities and that differentiation plays a major role in guiding people's vocational behavior.

Here we shall posit that incongruent people are more likely than congruent people to produce undifferentiated personalities in their offspring. This postulate will be seen to be especially useful when combined with the suggestion by Holland (1985:54) that undifferentiated personalities are more subject to change by the conditions of the work environment. This notion that work conditions can be instrumental in shaping personality is a long standing one in both psychology and sociology (for recent statements on the job or occupation socialization effect on personality, see Mortimer and Lorence, 1979; Frese, 1982; Kohn and Schooler, 1982). Of special interest to the present argument is the "linkage hypothesis" of occupational sociology: occupational characteristics shape parental personality which in turn affects socialization practices and offspring's personality (see Lueptow, McClendon and McKeon, 1979; Mortimer and Kumka, 1982 for different assessments of the linkage hypothesis). In the present context we would argue that the occupational shaping of parental personality will be stronger or more marked when the parental personality is undifferentiated.

Using the above ideas, it is now possible to specify type II redistribution. Incongruent people produce offspring with undifferentiated personalities. These offspring mature and take jobs in which their personalities are shaped by job conditions. The acquired personality traits are then transmitted to the next generation of offspring. Insofar as the people with undifferentiated personalities are taking jobs which are not subject to structural incongruence then they will also be acquiring personality types that are not subject to structural incongruence.

It can be seen that two distinct processes are at work in type II redistribution. First, the membership of personality types that are subject to structural incongruence is reduced as parents "push" their offspring out of these categories. Secondly, over time the membership of types not subject to structural incongruence will increase due to the job socialization effect working on undifferentiated personalities and the subsequent intergenerational replication of types. Thus, over time, people will be redistributed among personality types and the system will move toward isomorphism.

Type II redistribution can be illustrated with the same imaginary society used to exemplify type I redistribution. Once again, numbers of the I, A and S people have to take R, C or E jobs and hence are incongruent. These incongruent people will produce offspring with undifferentiated personalities. When these offspring mature, they take R, C and E jobs and through job socialization acquire R, C or E personalities. These people do not experience incongruence so in turn they replicate their acquired personality types in their own offspring.

It should be noted that type I and type II redistribution are by no means antagonistic to each other and both probably work within the system simultaneously. However, it might be the case that one or the other is predominant or that they work at different rates. The possibility that the redistribution mechanisms move the system towards isomorphism at different rates may be quite important. In the above illustrations, an underlying assumption has been that during the process of redistribution the relative frequency distribution of occupation types has not changed. But in reality we have no particular reason to suspect that the relative frequency distribution of occupation types is going to stand still and let the relative frequency distribution of personality types catch up and match it. In fact, in a technologically and economically dynamic system, the relative frequency distribution of occupation types may well be constantly changing. Under such conditions, it might well be the case that radical change may occur in the distribution of occupation types in a much shorter time span than it is possible for comparable change to occur in the distribution of personality types. If this is the case, then the system may never reach isomorphism even though the mechanisms of redistribution are constantly at work. However, differences in the prevalence and rate of operation of the redistribution mechanisms could be quite important in determining the actual degree of structural incongruence present in the system.

Research Implications

We will now attempt to draw all of the above arguments together into a single coherent theoretical statement and suggest some possible research implications.

The basic perspective of the Holland theory is that people search for an occupation that will be congruent with their personality. People who are successful in this search will tend to be more satisfied with their jobs than will people who are unable to find congruent work. The probability of congruence is determined by the degree of isomorphism between the relative frequency distributions of personality and occupation types. The relative frequency distribution of occupation types is determined by technology and other socio-economic factors. When changes in these factors decreases the system's isomorphism, structural incongruence increases for some personality types. The individuals who are subject to structural incongruence are less likely to replicate their own personality types through a type I or type II mechanism or both. This redistribution will act to decrease the membership of the personality types that are affected by structural incongruence and consequently the system will tend towards a condition of isomorphism. The rate of this tendency and the probability of isomorphism being reached are determined by the rate of redistribution and the stability of the relative frequency distribution of occupation types. In static societies, isomorphism should be the norm; in dynamic societies, the system may be characterized by a low level of isomorphism even though the redistribution mechanisms are at work.

All of the linkages proposed in the above theoretical argument are testable and can serve as research hypotheses. Some of the linkages

such as the congruence/satisfaction proposition and the cross generational replication of types are already within the research tradition of the general Holland theory. Other proposed linkages open up new research directions. In particular, the relationship between parental personality and occupation type congruence and tendency for cross generational replication of types should produce both exciting and interesting research. This relationship is central to the process of redistribution and to maintaining or generating a condition of isomorphism.

If the mechanisms of redistribution can be shown to be operating, then it is important to determine the rate at which they act and their relative prevalence in the system. An allied research issue is further study of both causes and rates of change in the relative frequency distribution of occupation types. The resolution of these questions could lead to an understanding of the extent and duration of structural incongruence in the system. Given the explicit linkage that the Holland theory makes between congruence and satisfaction, these matters are of somewhat more than academic importance. In fact, the extension of the Holland theory that has been proposed here may be especially timely given the apparent changes in the distributions of occupations going on now in the United States.

Throughout the present discussion, it has been assumed that changes in the relative frequency distribution of occupation types occur prior to changes in the relative frequency distribution of personality types. This may not be the case and perhaps the relative frequency distribution of personality types change first. If so, and if there is still a tendency towards isomorphism in the system, then we would have to specify different redistribution mechanisms than have been described here. In any case the general process of redistribution may well entail different mechanisms than those described here and this possibility should certainly be explored.

An investigation of these issues is likely to be very useful in further demonstrating the general utility and validity of the Holland theory. Furthermore, the theoretical argument presented here provides an interesting and stimulating merger of the distinct though complimentary disciplines of vocational psychology and occupational sociology.

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Table 1

Relative Frequency Distribution of Holland Personality Types (People)
Within the General Population and Jobs Classified by Holland Code Within
the U.S. Economy.

Holland Code	Jobs*	People**
Realistic (R)	51%	40%
Investigative (I)	9%	23%
Artistic (A)	2%	8%
Social (S)	7%	20%
Enterprising (E)	25%	6%
Conventional (C)	7%	3%

*Data presented by Gottfredson, Holland and Gottfredson (1975). Based on U.S. Bureau of the Census occupational data.

**Data from Gottfredson, Holland and Gottfredson (1975). Holland codes determined by the SDS for a male sample with some high school and above.

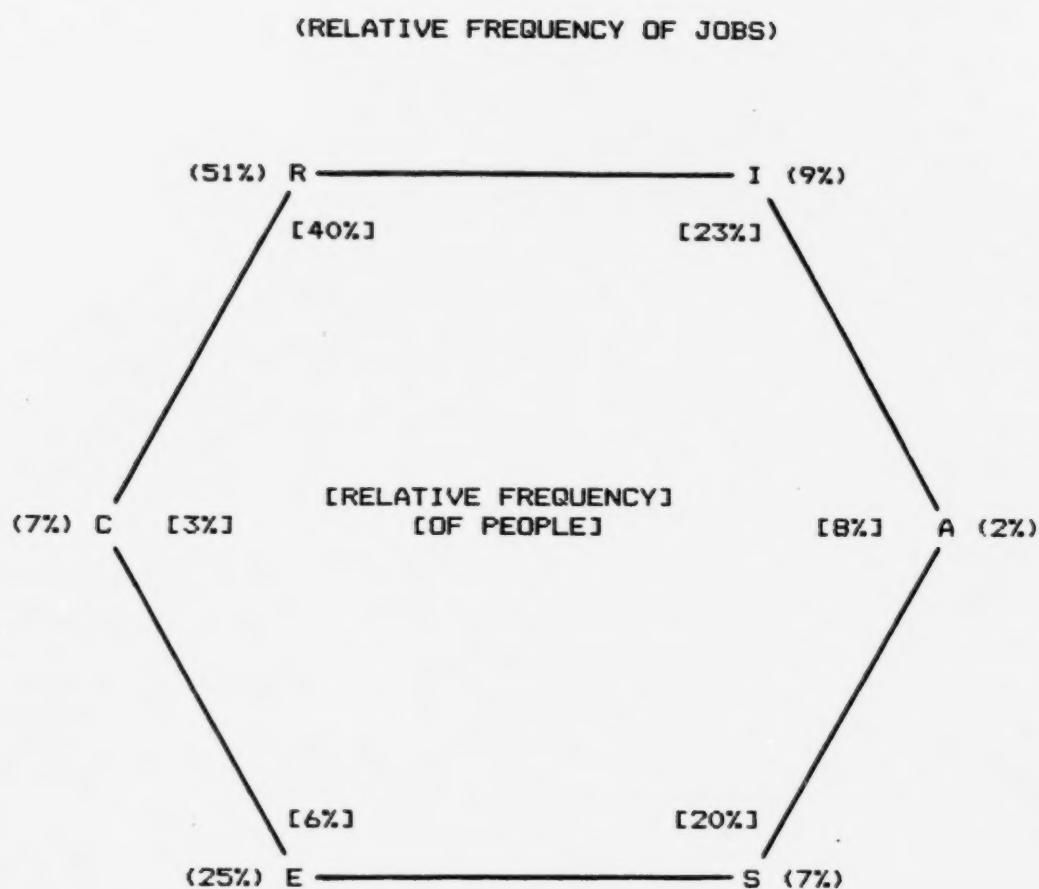


Figure 1.
Relative Frequency Distribution of Jobs and
People plotted on the Holland Hexagon.
(from Table 1)